Exhibit A

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/781,752	01/10/97	STICE	S 000270-007

HM12/0324

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EXAMINER	
CROUCH D	
ART UNIT	PAPER NUMBER
1632	15

DATE MAILED: 03/24/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

PTO-90C (Rev 2/95)

1- Fee Copy

#15

Notice of Allowability

Application No.	Applicant(s)
08/781,752	Stice et al.
Examiner	**Group Art Unit**
Deborah Crouch	1632

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

☒ This communication is responsive to *the amendment filed December 22, 1998, and papers 13 and 14*.

☒ The allowed claim(s) is/are *103-126*.

☐ The drawings filed on _____ are acceptable.

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE THREE MONTHS FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☐ Applicant MUST submit NEW FORMAL DRAWINGS

☐ because the originally filed drawings were declared by applicant to be informal.

☐ including changes required by the Notice of Draftsperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. _____.

☐ including changes required by the proposed drawing correction filed on _____, which has been approved by the examiner.

☐ including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 9

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

☒ Interview Summary, PTO-413

☒ Examiner's Amendment/Comment

☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

☒ Examiner's Statement of Reasons for Allowance

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ms. Robin Teskin on March 17, 1999.

1. Cancel claims 80-102.

2. Add the following claims:

103. An improved method of cloning a non-human mammal by nuclear transfer comprising the introduction of a non-human mammalian donor cell or a non-human mammalian donor cell nucleus into a non-human mammalian enucleated oocyte of the same species as the donor cell or donor cell nucleus to form a nuclear transfer (NT) unit, implantation of the NT unit into the uterus of a surrogate mother of said species, and permitting the NT unit to develop into the cloned mammal, wherein the improvement comprises using as the donor cell or donor cell nucleus a proliferating somatic cell that has been expanded in culture, or a nucleus isolated from said somatic cell.

104. An improved method of cloning a non-human mammal by nuclear transfer comprising the introduction of a non-human mammalian donor cell or a non-human mammalian donor cell nucleus into a non-human mammalian enucleated oocyte of the same species as the donor cell or donor cell nucleus to form a nuclear transfer (NT) unit, implantation of the NT unit into the uterus of a surrogate mother of said species, and permitting the NT unit to develop into the cloned mammal, wherein the improvement comprises using as the donor cell or donor cell nucleus a proliferating somatic cell that has been expanded in culture, or a nucleus isolated from said somatic cell, and wherein the donor

cell or donor cell nucleus has been genetically transformed to comprise at least one addition, substitution or deletion of a nucleic acid sequence.

~~105~~ 103. A method of cloning a non-human mammal by nuclear transfer comprising the following steps:

(i) inserting a desired non-human mammalian proliferating somatic cell that has been expanded in culture, or a nucleus isolated from said somatic cell, into a non-human mammalian enucleated oocyte of the same species under conditions suitable for the formation of a nuclear transfer (NT) unit;

(ii) activating the resultant nuclear transfer unit;

(iii) culturing said activated NT unit until greater than the 2-cell developmental stage; and

(iv) transferring said cultured NT unit to a host non-human mammal of the same species such that the NT develops in to a non-human mammal.

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~~106~~ 104. An improved method of cloning a non-human mammalian fetus by nuclear transfer comprising the introduction of a non-human mammalian donor cell or a non-human mammalian donor cell nucleus into a non-human mammalian enucleated oocyte of the same species as the donor cell or donor cell nucleus to form a nuclear transfer (NT) unit, implantation of the NT unit into the uterus of a surrogate mother of the same species, and permitting the NT unit to develop into the mammalian fetus, wherein the improvement comprises using as the donor cell or donor cell nucleus a proliferating somatic cell that has been expanded in culture, or a nucleus isolated from said somatic cell.

~~107~~ 105. An improved method of cloning a non-human mammalian fetus by nuclear transfer comprising the introduction of a non-human mammalian donor cell or a non-human mammalian donor cell nucleus into a non-human mammalian enucleated oocyte of the same species as the donor cell or donor cell nucleus to form a nuclear transfer (NT) unit,

implantation of the NT unit into the uterus of a surrogate mother of the same species, and permitting the NT unit to develop into the mammalian fetus, wherein the improvement comprises using as the donor cell or donor cell nucleus a proliferating somatic cell that has been expanded in culture, or a nucleus isolated from said somatic cell, and wherein the donor cell or donor cell nucleus has been genetically transformed to comprises at least one addition, substitution or deletion of a nucleic acid sequence.

~~108~~ 6. A method of cloning a non-human mammalian fetus by nuclear transfer comprising the following steps:

(i) inserting a desired non-human mammalian proliferating somatic cell that has been expanded in culture, or a nucleus isolated from said somatic cell, into a non-human mammalian enucleated oocyte of the same species under conditions suitable for the formation of a nuclear transfer (NT) unit;

(ii) activating the resultant nuclear transfer unit;

(iii) culturing said activated NT unit until greater than the 2-cell developmental stage; and

(iv) transferring said cultured NT unit to a host non-human mammal of the same species such that the NT develops into a fetus.

~~109~~ 7. The method of any of claims ~~106,107 or 108~~ 4-6, wherein the fetus develops into an offspring.

~~110~~ 8. The method of any of claims ~~103-108~~ 1-6, wherein the donor cell or donor cell nucleus is from mesoderm.

~~111~~ 9. The method of any of claims ~~103-108~~ 1-6, wherein the donor cell or donor cell nucleus is from endoderm.

~~112~~ 10. The method of any of claims ~~103-108~~ 1-6, wherein the donor cell or donor cell nucleus is from ectoderm.

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~~113~~ 11. The method of any of claims ~~103-108~~ 1-6, wherein the donor cell or donor cell nucleus is from a fibroblast.

~~114~~ 12. The method of any of claims ~~103-108~~ 1-6, wherein the donor cell or donor cell nucleus is from an ungulate.

~~115~~ 13. The method of any of claims ~~103-108~~ 1-6, wherein the donor cell or donor cell nucleus is from an ungulate selected from the group consisting of bovine, ovine, porcine, equine, caprine and buffalo.

~~116~~ 14. The method of any of claims ~~103-108~~ 1-6, wherein the donor cell or donor cell nucleus is from a non-human mammalian fetus.

~~117~~ 15. The method of any of claims ~~103-108~~ 1-6, wherein the donor cell or donor cell nucleus is from an adult non-human mammalian cell.

~~118~~ 16. The method of any of claims ~~103-108~~ 1-6, wherein the donor cell or donor cell nucleus is selected from the group consisting of epithelial cells, neural cells, epidermal cells, keratinocytes, hematopoietic cells, melanocytes, chondrocytes, B-lymphocytes, T-lymphocytes, erythrocytes, macrophages, monocytes, fibroblasts, muscle cells, and nuclei isolated therefrom.

~~119~~ 17. The method of any of claims ~~103-108~~ 1-6, wherein the donor cell or donor cell nucleus is from an organ selected from the group consisting of skin, lung, pancreas, liver, stomach, intestine, heart, reproductive organ, bladder, kidney and urethra.

~~120~~ 18. The method of any of claims ~~103-108~~ 1-6, wherein the oocyte is matured in vitro or in vivo prior to enucleation.

~~121~~ 19. The method of any of claims ~~103-108~~ 1-6, wherein the oocyte is matured in vitro prior to enucleation.

~~122~~ 20. The method of any of claims ~~103-108~~ 1-6, wherein the oocyte is enucleated by micro-surgical methods.

~~123~~ 21. The method of any of claims ~~103-108~~ 1-6, wherein the oocyte is enucleated about 10 to 40 hours after initiation of in vitro maturation.

~~124~~ 22. The method of any of claims ~~103-108~~ 1-6, wherein the oocyte is matured in vivo prior to enucleation.

~~125~~ 23. The method of any of claims ~~103-108~~ 1-6, wherein the non-human mammal is bovine.

~~126~~ 24. The method of any of claims ~~103-108~~ 1-6, wherein the non-human mammal is bovine.

3. The title has been changed to "Cloning Using Donor Nuclei from Proliferating Somatic Cells".

4. The claims have been renumbered as 1-24

The following is an examiner's statement of reasons for allowance: Proliferating cells are non-quiescent cells, and are in cell cycle stage M,G_1,S or G_2.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Crouch, Ph.D. whose telephone number is (703) 308-1126.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

The fax number is (703) 308-4242.

Please note the change in art unit number to Art Unit 1632. Please use this art unit number on all correspondence.

Deborah Crouch

Dr. D. Crouch
March 22, 1999

DEBORAH CROUCH
PRIMARY EXAMINER
GROUP ~~1800~~ 1630